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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/781,795

02/20/2004

Yasuyuki Arai

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5184

31780

7590

09/22/2010

Robinson Intellectual Property Law Office, P.C.
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EXAMINER

MATTHEWS, COLLEEN ANN

ART UNIT

PAPER NUMBER

2811

MAIL DATE

DELIVERY MODE

09/22/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/781,795	Applicant(s) ARAI ET AL.	
	Examiner Colleen A. Matthews	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-14, 24-26, 63-84, 89-110 and 112-120 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-14, 24-26, 63-84, 89-110, 112 and 113 is/are rejected.
- 7) ☒ Claim(s) 114-120 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>05/21/2010, 10/12/2005, 2/20/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/29/2010 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 63-66, 79-83, 98 and 102 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,509,217 to Reddy in view of U.S. Pub. No. 2002/0192886 to Inoue.

Re claims 63 and 79: Reddy discloses a flexible integrated circuit capable of performing data transmission wirelessly, (Fig 1, for example) comprising:

an integrated circuit (col 7 lines 50-60) including a memory disposed over a substrate (10), the integrated circuit comprising a thin film transistor (S/G/D, single transistor shown) each including an impurity region ("S", for example);

Art Unit: 2811

an interlayer insulating film (44) over the thin film transistor; and
an antenna (68/70) provided on the interlayer insulating film and in a same layer (both are within layer 60) as a wiring (62, for example and/or 58) connected to the impurity region (connected to impurity region "S" through contact 52), wherein the substrate has a flexibility (plastic, col 8 line 1).

Reddy fails to explicitly disclose the antenna is formed from a same layer as the wiring.

Inoue teaches an antenna formed from a same layer as a wiring (Fig 4g, antenna 8a, wiring 8, see paragraph [0046]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Reddy to include the antenna formed from a same layer as the wiring as suggested by Inoue in order to simplify materials needed for manufacturing and so that the antenna pattern and wiring can be formed at once and from the same processes (see Inoue, paragraph [0032) thus simplifying manufacturing.

Re claims 64 and 80: Reddy discloses the flexible integrated circuit according to claims 63 and 79 wherein the substrate is a plastic substrate (plastic, col 8 line 1).

Re claims 65 and 81: Reddy discloses the flexible integrated circuit according to claims 63 and 79 wherein the thin film transistor includes a semiconductor film comprising silicon.

Re claims 66 and 82: Reddy discloses the flexible integrated circuit according to claims 63 and 79 further comprising an antenna wherein the antenna is electrically connected to the integrated circuit (col 16 lines 9-28).

Re claim 83: Reddy discloses the flexible integrated circuit according to claim 79 wherein the memory is a rewritable memory (col 1 lines 15-20)

Re claims 98 and 102: Reddy discloses the flexible integrated circuit according to claims 63 and 79, wherein the antenna (68/70) is formed in a depressed portion formed in the interlayer insulating film (44/60).

Claims 12-14, 24-25, 67-70, 89-90, 92, 96-97, 99, 103-109, 112-113 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2003/0032210 to Takayama in view of U.S. Pat. No. 6,509,217 to Reddy in view of U.S. Pub. No. 2002/0192886 to Inoue.

Regarding claims 12, 24, 67, 103 and 108, Takayama discloses a flexible integrated circuit capable of performing data transmission wirelessly (preamble not given patentable weight) comprising:

- a substrate (412, paragraph [0247] and [0248]),
- an adhesive (411) over the flexible substrate;
- a metal oxide (402; paragraph [0190] lines 1-3, paragraph [0242] lines 17-18, paragraph [0246] line 4) over the adhesive;
- an insulating film (403; paragraph [0191] lines 1, paragraph [0242] lines 19-20) over the metal oxide,
- a transistor comprising a semiconductor film (104-108 in Figure 6A), a gate insulating film (118 in Figure 6B) and a gate electrode (Figure 6C elements 126-130) which provided over the insulating film;

an interlayer insulating film over the transistor (156, paragraph [0228] see Fig 8);
a wiring (157-164, paragraph [0228], see Fig 8) formed on the interlayer insulating film, wherein the wiring is connected to an impurity region in the semiconductor film (157 is connected to impurity region 140, for example); and

Takayama also discloses use of the circuit with an antenna (2906 in Figure 19A and 3006 in Figure 19B).

Takayama fails to explicitly disclose the antenna formed on the interlayer insulating film wherein the antenna is formed from a same layer as the wiring.

Reddy discloses a flexible integrated circuit capable of performing data transmission wirelessly, (Fig 1, for example) comprising:

a substrate (10),
an insulating film (12B),
a transistor (S/G/D, single transistor shown, multiple disclosed, see col 7 lines 50-60) on the insulating film;
an interlayer insulating film (44) over the transistor;
a wiring (62, for example and/or 58) connected (through contact 52, for example) to an impurity region ("S", for example), and
an antenna (68/70) provided on the interlayer insulating film and in the same layer (both are within layer 60) as the wiring (62 and/or 58).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takayama to include the antenna formed on the interlayer insulating film as taught by Reddy in order to provide wireless transmission.

Inoue teaches an antenna formed from a same layer as a wiring (Fig 4g, antenna 8a, wiring 8, see paragraph [0046]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Takayama to include the antenna formed from a same layer as the wiring as suggested by Inoue in order to simplify materials needed for manufacturing and so that the antenna pattern and wiring can be formed at once and from the same processes (see Inoue, paragraph [0032] thus simplifying manufacturing.

Re claims 25 and 109: Takayama as modified discloses the container as above wherein the flexible integrated circuit is covered by a label (407).

Re claims 13 and 104: Takayama as modified discloses the flexible integrated circuit as above. The modification of Reddy further teaches wherein the antenna comprises a same material as the wiring (col 16 lines 9-40)

Re claims 14 and 105: Takayama as modified discloses the flexible integrated circuit as above. The modification of Reddy further teaches wherein the antenna comprises a conductive paste (col 16 lines 50-55).

Re claim 68: Takayama as modified discloses the flexible integrated circuit according to claim 67 wherein the substrate is a plastic substrate (412, paragraph[0247] and [0248]).

Re claim 69: Takayama as modified discloses the flexible integrated circuit according to claim 67 wherein each of the thin film transistors includes a semiconductor film comprising silicon.

Re claim 70: Takayama as modified discloses the flexible integrated circuit according to claim 67. The modification of Reddy further teaches comprising an antenna wherein the antenna is electrically connected to the integrated circuit (col 16 lines 9-28).

Re claims 89, 90, 92, 106 and 112: Takayama as modified discloses the flexible integrated circuit as above wherein the interlayer insulating film comprises an organic material (paragraph [0228]).

Re claims 96, 97, 99, 107 and 113: Takayama as modified discloses the flexible integrated circuit as above. The modification of Reddy further teaches wherein the antenna (68/70) is formed in a depressed portion formed in the interlayer insulating film (44/60).

Claims 84, 91 and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,509,217 to Reddy in view of U.S. Pub. No. 2002/0192886 to Inoue and U.S. Pub. No. 2003/0032210 to Takayama.

Re claim 84: Reddy as modified discloses the flexible integrated circuit according to claim and 79. Reddy fails to disclose wherein the integrated circuit is attached to the substrate with an adhesive interposed therebetween. Takayama teaches an integrated circuit is attached to the substrate (412) with an adhesive (411) interposed therebetween. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Reddy to include the adhesive as taught by Takayama in order to secure the integrated circuit to the substrate.

Re claims 91 and 95: Reddy as modified discloses the flexible integrated circuit according to claims 63 and 79. Reddy fails to disclose wherein the interlayer insulating film comprises an organic material. Takayama teaches an interlayer insulating film comprising an organic material (paragraph [0228]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Reddy to include the organic material as taught by Takayama in order to provide device insulation between wiring connections.

Claims 26, 75-78, 94, 101 and 110 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2003/0032210 to Takayama in view of U.S. Pat. No. 6,509,217 to Reddy and U.S. Pub. No. 2002/0192886 to Inoue and U.S. Pub. No. 2002/0027247 to Arao et al (Arao).

Re Claims 26 and 110: Takayama discloses a container according as above. Takayama fails to disclose a protective film having DLC film or a CN film is provided between the flexible integrated circuit and the label. Arao et al. teaches a protective film of DLC (Figure 10B element 704) provided on a thin film integrate circuit.

It would have been obvious to one of ordinary skill in the art at the time the invention was made use the protective DLC film of Arao et al. as the protection layer in Takayama in order to prevent the invasion of oxygen as well as water and also to mechanically protect the thin film integrated circuit.

Re Claim 75: Takayama discloses a flexible integrated circuit capable of performing data transmission wirelessly comprising:

Art Unit: 2811

an integrated circuit attached to a substrate (412, paragraph [0247] and [0248]), with an adhesive (411) interposed therebetween, the integrated circuit comprising a thin film transistor;

an interlayer insulating film over the transistor (156, paragraph [0228] see Fig 8); and

Takayama also discloses use of the circuit with an antenna (2906 in Figure 19A and 3006 in Figure 19B).

Takayama fails to explicitly disclose the antenna provided on the interlayer insulating film, wherein the antenna is formed from a same layer as a wiring connected to the impurity region or a protective film covering the antenna.

Reddy discloses a flexible integrated circuit capable of performing data transmission wirelessly, (Fig 1, for example) comprising: a substrate (10),

an insulating film (12B),

a transistor (S/G/D, single transistor shown, multiple disclosed, see col 7 lines 50-60) on the insulating film;

an interlayer insulating film (44) over the transistor;

a wiring (62, for example and/or 58) connected (through contact 52, for example) to an impurity region ("S", for example), and

an antenna (68) provided on the interlayer insulating film and in the same layer (both are within layer 60) as the wiring (62 and/or 58) connected (through contact 52, for example) to the impurity region ("S", for example).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takayama to include the antenna formed on the interlayer insulating film as taught by Reddy in order to provide wireless transmission.

Inoue teaches an antenna formed from a same layer as a wiring (Fig 4g, antenna 8a, wiring 8, see paragraph [0046]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Takayama to include the antenna formed from a same layer as the wiring as suggested by Inoue in order to simplify materials needed for manufacturing and so that the antenna pattern and wiring can be formed at once and from the same processes (see Inoue, paragraph [0032]) thus simplifying manufacturing.

Arao et al. teaches a protective film of DLC (Figure 10B element 704) provided on a thin film integrate circuit.

It would have been obvious to one of ordinary skill in the art at the time the invention was made use the protective DLC film of Arao et al. as the protection layer in Reddy in order to prevent the invasion of oxygen as well as water and also to mechanically protect the thin film integrated circuit.

Re claim 76: Takayama discloses the flexible integrated circuit according to claim 75 wherein the substrate is a plastic substrate (412, paragraph[0247] and [0248]).

Re claim 77: Takayama discloses the flexible integrated circuit according to claim 75 wherein the thin film transistor includes a semiconductor film comprising silicon.

Re claim 78: Takayama discloses the flexible integrated circuit according to claim 75. The modification of Reddy further teaches a wiring (62/52 and 64/54) electrically connected to the integrated circuit (col 16 lines 9-28) wherein the wiring and the antenna are formed on a same surface

Re claim 94: Takayama as modified discloses the flexible integrated circuit as above wherein the interlayer insulating film comprises an organic material (paragraph [0228]).

Re claim 101: Takayama as modified discloses the flexible integrated circuit as above. The modification of Reddy further teaches wherein the antenna (68/70) is formed in a depressed portion formed in the interlayer insulating film (44/60).

Claims 71-74 and 100 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,509,217 to Reddy in view of U.S. Pub. No. 2002/0192886 to Inoue and U.S. Pub. No. 2002/0027247 to Arao et al (Arao).

Regarding claim 71, Reddy discloses a flexible integrated circuit capable of performing data transmission wirelessly, (Fig 1, for example) comprising:

an integrated circuit (col 7 lines 50-60 disposed over a substrate (10),
the integrated circuit comprising a thin film transistor (S/G/D, single transistor shown, multiple disclosed, see col 7 lines 50-60) each including an impurity region ("S" for example)
an interlayer insulating film (44) over the thin film transistor; and

Art Unit: 2811

an antenna (68/70) provided on the interlayer insulating film and in a same layer (both are within layer 60) as a wiring (62, for example, and or 58) connected (through contact 52, for example) to the impurity region ("S", for example), wherein the substrate has a flexibility (plastic, col 8 line 1).

Reddy fails to disclose wherein the antenna is formed from a same layer as a wiring and a protective film covering the antenna.

Inoue teaches an antenna formed from a same layer as a wiring (Fig 4g, antenna 8a, wiring 8, see paragraph [0046]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Takayama to include the antenna formed from a same layer as the wiring as suggested by Inoue in order to simplify materials needed for manufacturing and so that the antenna pattern and wiring can be formed at once and from the same processes (see Inoue, paragraph [0032]) thus simplifying manufacturing.

Arao et al. teaches a protective film of DLC (Figure 10B element 704) provided on a thin film integrate circuit.

It would have been obvious to one of ordinary skill in the art at the time the invention was made use the protective DLC film of Arao et al. as the protection layer in Reddy in order to prevent the invasion of oxygen as well as water and also to mechanically protect the thin film integrated circuit.

Re claim 72: Reddy discloses the flexible integrated circuit according to claim 71 wherein the substrate is a plastic substrate (plastic, col 8 line 1).

Re claim 73: Reddy discloses the flexible integrated circuit according to claim 71 wherein the thin film transistor includes a semiconductor film comprising silicon.

Re claim 74: Reddy discloses the flexible integrated circuit according to claims 71 further comprising an wiring (62/52 and 64/54) electrically connected to the integrated circuit (col 16 lines 9-28) wherein the wiring and the antenna are formed on a same surface

Re claim 100: Reddy discloses the flexible integrated circuit according to claims 71, wherein the antenna (68/70) is formed in a depressed portion formed in the interlayer insulating film (44/60).

Claim 93 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,509,217 to Reddy in view of U.S. Pub. No. 2002/0192886 to Inoue and U.S. Pub. No. 2002/0027247 to Arao et al (Arao) and U.S. Pub. No. 2003/0032210 to Takayama.

Re claim 93: Reddy as modified discloses the flexible integrated circuit according to claim 71. Reddy fails to disclose wherein the interlayer insulating film comprises an organic material. Takayama teaches an interlayer insulating film comprising an organic material (paragraph [0228]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Reddy to include the organic material as taught by Takayama in order to provide device insulation between wiring connections.

Allowable Subject Matter

Claims 114-120 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Re Claims 114-120: the prior art fails to anticipate or render obvious the claimed limitations including "the antenna is formed from a same layer as a/the wiring" (as presented in the independent claims 12, 63, 67, 71, 75, 79, and 103) in combination with "wherein the wiring is connected to the impurity region directly".

Response to Arguments

Applicant's arguments filed 06/29/2010 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colleen A. Matthews whose telephone number is (571)272-1667. The examiner can normally be reached on Monday - Friday 8AM-4:30PM.

Art Unit: 2811

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Gurley can be reached on 571-272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Colleen A Matthews/
Examiner, Art Unit 2811